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No. V.

PREVENTION OF FORGERY.

IN the year 1818 the Society, being deeply impressed with the alarming frequency of the crime of forgery practised both against the Bank of England and against several of the country banks, resolved to investigate the subject, for the purpose of ascertaining if any means existed of raising up additional obstacles in the way of the forger. The result of this inquiry was published by them in the following year ; and the edition, although a large one, having been disposed of, it was resolved, previously to the publication of a second, again to open the investigation. The additional matter thus obtained, (and for which the thanks of the Society have been voted to the several contributors), consists of a plan for the construction of bank-notes, proposed by Mr. Ferguson of Newman-street, and of specimens of engine-turning, applicable to the ornaments of bank-notes, presented to the Society by Mr. Lea and Mr. Palmer.

THE plan of Mr. Ferguson is the following :

A set of letter punches is to be cut by one of the best artists in this department. The size of the letter is to be rather small ; and it is to differ from common type in the up and down strokes being of the same thickness, and in the projecting parts of the ascending and descending letters being shortened in order to lessen the white spaces between

No. °

London,

188

Tens.

Pay _____ or Bearer

Pounds

Twenty

Thirty

Forty

Fifty

Sixty

Seventy

Eighty five pounds 13/6

Ninety

(Signature.)

(Banker's name.)

£85.. 13.. 6



T. and J. B. Flindell, 8, North-street, Lambeth.

N.^o

London,

182

Hundreds.

Pay _____ or Bearer

One Hundred _____

Two Hundred _____

Three Hundred _____

Four Hundred _____

Five Hundred _____

Six Hundred _____

Seven Hundred _____

Eight Hundred _____

Nine Hundred _____

(Banker's name.)



T. and J. B. Flindell, 8, North-street, Lambeth.

No. ²

London,

182

Thousands.

Pay _____ or Bearer

One Thousand _____

Two Thousand _____

Three Thousand _____

Four Thousand _____

Five Thousand _____

Six Thousand _____

Seven Thousand _____

Eight Thousand _____

Nine Thousand _____

Ten Thousand _____

[Banker's name.]



T. and J. B. Flindell, 8, North-street, Lambeth.

the lines. The shoulders or margins round each letter are also to be reduced, so as to diminish the proportion of white. A fount of this letter having been obtained in the usual way, a page is to be set up of the size of a bank-note plate. This page is to be a portion of the Bible, or of some other well known book, and the several paragraphs of which it consists are to succeed each other without the interposition of any of those breaks or white spaces which occur in common printing. An impression from the page so set up, when held at such a distance from the eye that the individual letters become no longer visible, will present an uniform grey tint. A stereotype copy being made of this page, it is to be warmed, and melted wax is to be poured over it so as to fill up all the depressions in the letters, and to reduce the whole to one even uniform surface.

Upon the plate, thus prepared, the words, scroll work, and other ornaments of a bank-note are to be cut by some eminent artist; the wax with which the interstices are filled enabling him to produce good work, by preventing, in a great measure, the broken, interrupted motion of the graver, which would happen in cutting through a face of type without this precaution.

The engraving being finished, the wax may be removed by means of hot oil of turpentine, and an impression being then printed off from the plate, it is evident that the words, figures, &c. of the note will be in white on a grey ground; and this ground, consisting of many thousand letters of type, offers a multitude of intersections of white lines with black letters, in which intersections the security consists. The prototype plate being completed, impressions of it are to be taken, from which any number of stereotype plates

may be obtained, and the original punches and matrices may be destroyed.

All the plates used in printing the notes being derived from the same prototype plate, every genuine note will necessarily be identical as far as relates to the intersections; and in order to ascertain the genuineness of a note each person will select any one or two intersections that he pleases, so that the forger has little chance of effecting his purpose, unless he obtains a very near resemblance in all the intersections.

There are four modes to which the forger may have recourse, namely:—type, engraving on metal, on wood, and lithography.

To the imitation of the note in type the following difficulties present themselves. The necessity of cutting a set of punches on purpose. The impossibility of ascertaining from the impression or face of a type (which is all that is shown in the note) its other dimensions; and the difference of a hair's breadth in the length or breadth of the shoulder of any one letter being multiplied by the number of times that such letter recurs in any line will render all the intersections of each line quite incorrect, and therefore obvious to detection.

The engraver in copper or wood, might, at a great expenditure of labour, produce a resemblance in the intersections; but would be foiled in the attempt to obtain, by the utmost dexterity of hand, that identity of form, in repetitions of the same letter, which necessarily occurs in the genuine note, such repetitions in this latter being casts from one matrix. It may also be mentioned as a farther difficulty in the way of the engraver on metal, that as his black lines are below the common surface of the plate,

whereas in type they are on the surface, the whites being below, it is impossible that an impression from the one can resemble, in its general aspect, an impression from the other.

Lithography unquestionably offers the most ready means of successful imitation; but the most correct transfers even of common writing, are so far from giving a perfect impression of the original as to render a passable copy of the proposed note wholly impracticable, provided care is taken to issue none but perfect impressions of the genuine one.

THE following letter from Mr. Lea, relating to his specimens of engine-turning, plates IV. and V., applicable to bank-notes, was ordered to be printed, and the thanks of the Society were returned for the same.

SIR, King-street, Clerkenwell, Nov. 1, 1824.

I RECEIVED yours, dated October 26, and will thank you to inform the Committee of Correspondence and Papers that I have no particular communication to make on the two plates they have selected as specimens of my engine-turning: all that can be said in a general point of view has been done by the Society, in their report on preventing the forgery of bank-notes (*vide* page 7).

To describe the rose-engine, as to its construction and component parts, would be but of little service, when it is very well known that the mathematical exactness, and the soft, delicate appearance and shade of work executed on it, and which, to a common observer, leaves the finest engravings far behind, arises entirely from the abilities and

taste of the artist employed. To describe all these would require a volume.

At the time I turned the two plates I did not know of any thing I could have added that would have made them more difficult to copy ; but I am happy to say now I have made considerable improvements on the engine since that time.

Daily experience convinces me that the powers of the rose-engine are but little known ; and it is to future time that the persevering artist must look for a reward for his labours, by producing specimens so novel and various, that the mind of man is incapable of contemplating at present.

The rose-engine is superior to most, if not all, of the most complicated engines and pieces of machinery : *their* movements and powers are limited, *its* are unknown, and may be carried to an endless variety in the hands of an ingenious artist. The engine which the two plates were turned by, without any additional movements, would be capable of executing an endless variety of patterns, all different, yet all alike beautiful, and with that mathematical exactness which is one of its great characteristic properties.

As my principal study has been to produce something *new* from the engine, it is but reasonable to suppose that in some instances I have been successful, but in no one have I been so fortunate as lately in that of scroll-work ; this *is* new, and so beautiful in its appearance and difficult to execute, that the other specimens of engine-turning are far inferior to it.

Should the bank directors ever seriously attempt to prevent bank forgeries, a note with a design engraved by a first-rate artist, and a proportionate quantity of rose-engine turning executed in the first style, would probably be the

only means of preventing forgeries, as so few persons could be found capable of producing anything like it.

I flatter myself the gentlemen of the committee will consider any farther explanation unnecessary, for two reasons: first, the short time allowed me; secondly, the quantity of matter that would be required to explain the intricate movements of the engine, should it be prudent to do so.

I am, Sir,

A. Aikin, Esq.
Secretary, &c. &c.

&c. &c. &c.

WILLIAM LEA.

THE following letter from Mr. W. Palmer, relative to his plate of engine turning, plate VI., applicable to bank-notes, was directed to be printed, and the thanks of the Society were voted to Mr. Palmer for the same.

SIR,

18, Clifton-street, Finsbury-square,
November 9, 1824.

IT being the intention of the Society of Arts, in their next Bank Note Report, to publish my specimen for the prevention of forgery; and thinking, with the committee, that my opinions should accompany it, I beg to offer the following remarks, which are the result of eighteen years' practice, much observation, and great expense.

There are three distinct branches of engraving, which may be blended together to produce a perfect whole, (at least as far as human nature can go), writing, vignette, and engine engraving; and unquestionably the first ability in the country should be employed to produce each of these. The first mentioned, (writing), I hesitate not in pronouncing

the least in consequence, as it consists of extended parts, with which the eye of the public can never become so familiar as to discover that variation from the original which is the characteristic of a forgery: thus it is that strangers to the art of engraving fix upon the figure of Britannia, in the present Bank of England note, to form their opinion, not that it possesses any superior execution, but because, from its compactness and partial systematic division of space, it is brought within the focus of the eye:—then is it not obvious that a well executed vignette would protect the public more, as the artist would work from principle, knowledge, and taste? I will admit that an inferior engraver can copy that which he could not produce; but I will maintain that the forger's success will decline in exact proportion to the increased ability used to produce the original. But as vignettes are the product of the hand, they are still subject to all those inaccuracies which are peculiar to our nature; and for this reason I prefer engine engraving, which is, in my opinion, by far the best method, because it approaches nearer perfection. It embraces what writing does—utility; it presents that which vignettes do—beauty; and it offers what our country prays for—security. This must be evident to every thinking man, and to engravers I will say that practice points it out, observation declares it, and reason confirms it. With the engine a systematic division can be obtained, and figures of almost every description formed, and such symmetry preserved that the most experienced engraver would find it almost impracticable to effect the same by the hand. As I have shown why engine work is to be preferred, the next point to be considered is the best arrangement of those lines which may be produced by an engine.

Simplicity is the cry of many, but I treat that cry as the voice of interest or inexperience. If it were impossible to procure a second machine I would then grant that simplicity of figure would be most desirable; but of what advantage can that production be (although it may defy manual labour to produce its equal for beauty and equalization of space,) when machines out of number may be procured that will effect the same thing? This is why I object to the common ruling machine being brought into requisition for bankers' notes; and this is the reason also why intricacy is the best method of preventing forgery: the lines can be so interwoven that their primitive figure may be disguised: when this is done all is done that can be; it puts aside the exertions of the hand, and leads the mechanist into a labyrinth of doubts and uncertainties. The result of such a disposal of the lines will be a peculiar character, which is only attainable by similar means; and if others are used, a difference must follow, and the attention of the most hasty observer will be arrested by something irregular, which must naturally lead to a closer examination.

It has been a prevailing opinion that the public have not the power of discriminating between good and bad engraving. This proves the necessity of a departure from the present system of the Bank of England note, which cramps the abilities, and prevents an opportunity even of forming a judgment upon it.

It is recorded that the herb women of Athens were capable of judging between good and bad oratory; the reason is manifest, for they were imperceptibly taught from hearing it daily; not that they could assign a reason, but because they were familiar with that which was perfect. In like manner I would so familiarize the eye of the people to

a perfect engraving, that when a spurious production presented itself they would instantly detect it. Then teach them, and teach them without their knowing how they are taught; this is the earnest recommendation of yours,

&c. &c. &c.

WM. PALMER.

A. Aikin, Esq.
Secretary, &c. &c.